

## CLAIMS

We claim:

- 1 1. An extensible file access method for accessing a foreign file system from a data processing  
2 system with a native file system, said foreign file system and said native file system  
3 implementing different file system protocols, said file access method comprising the steps of:  
4       issuing a request according to the native file system protocol for data stored in the  
5 foreign file system;  
6       translating the native file system request to an intermediate programming interface,  
7 wherein the intermediate programming interface is different from both the native file system  
8 protocol and the foreign file system protocol;  
9       translating the intermediate file system request to the foreign file system protocol; and  
10       returning to the data processing system a response from the foreign file system  
11 responsive to the translated request.
- 1 2. The file access method of claim 1 wherein the file access method is extended to support a  
2 second foreign file system by providing a translation from the intermediate programming  
3 interface to the second foreign file system protocol, said method further comprising the step of.  
4       determining the foreign file system protocol.
- 1 3. The file access method of claim 1 wherein the file access method is extended to support a  
2 second native file system by providing a translation from the second native file system protocol  
3 to the intermediate programming interface, said method further comprising the step of.  
4       determining the native file system protocol.
- 1 4. The file access method of claim 1 wherein the intermediate programming interface  
2 comprises a set of generic access functions common to the native file system protocol and the  
3 foreign file system protocol and comprises a set of file system specific functions which are not  
4 common to the file system protocols.

1 5. The file access method of claim 4 wherein set of generic access functions common to the  
2 native file system protocol and the foreign file system protocol are translated from the native  
3 file system protocol to the intermediate programming interface which is then translated to the  
4 foreign file system protocol, and wherein the set of file system specific functions which are not  
5 common to the file system protocols are not translated from the native file system protocol to  
6 the intermediate programming interface which is then translated to the foreign file system  
7 protocol.

1 6. The file access method of claim 5 wherein the set of file system specific functions which are  
2 not common to the file system protocols further comprises a set of extended native file system  
3 functions which have no equivalent function in the foreign file system protocol.

1 7. The file access method of claim 6 wherein the set of extended native file system functions  
2 causes a predetermined response to be sent to the data processing system.

1 8. The file access method of claim 5 wherein the set of file system specific functions which are  
2 not common to the file system protocols further comprises a set of extended foreign file system  
3 functions which have no equivalent function in the native file system protocol.

1 9. The file access method of claim 8 wherein the set of extended foreign file system functions  
2 are passed through to the foreign file system in an untranslated form.

1 10. An article of manufacture for use in a computer system for providing an extensible file  
2 access method for accessing a foreign file system from a data processing system with a native  
3 file system, said foreign file system and said native file system implementing different file  
4 system protocols, said article of manufacture comprising a computer-readable storage medium  
5 having a computer program embodied in said medium which causes the computer system to  
6 execute the access method comprising the steps of:

7 issuing a request according to the native file system protocol for data stored in the  
8 foreign file system;

9 translating the native file system request to an intermediate programming interface,  
10 wherein the intermediate programming interface is different from both the native file system  
11 protocol and the foreign file system protocol;

12 translating the intermediate file system request to the foreign file system protocol; and  
13 returning to the data processing system a response from the foreign file system  
14 responsive to the translated request.

1 11. The article of manufacture of claim 10 wherein the file access method is extended to  
2 support a second foreign file system by providing a translation from the intermediate  
3 programming interface to the second foreign file system protocol, said method further  
4 comprising the step of.

5 determining the foreign file system protocol.

1 12. The article of manufacture of claim 10 wherein the file access method is extended to  
2 support a second native file system by providing a translation from the second native file  
3 system protocol to the intermediate programming interface, said method further comprising the  
4 step of.

5 determining the native file system protocol.

1 13. The article of manufacture of claim 10 wherein the intermediate programming interface  
2 comprises a set of generic access functions common to the native file system protocol and the  
3 foreign file system protocol and comprises a set of file system specific functions which are not  
4 common to the file system protocols.

1 14. The article of manufacture of claim 13 wherein set of generic access functions common to  
2 the native file system protocol and the foreign file system protocol are translated from the  
3 native file system protocol to the intermediate programming interface which is then translated  
4 to the foreign file system protocol, and wherein the set of file system specific functions which  
5 are not common to the file system protocols are not translated from the native file system  
6 protocol to the intermediate programming interface which is then translated to the foreign file  
7 system protocol.

1 15. The article of manufacture of claim 14 wherein the set of file system specific functions  
2 which are not common to the file system protocols further comprises a set of extended native  
3 file system functions which have no equivalent function in the foreign file system protocol.

1 16. The article of manufacture of claim 15 wherein the set of extended native file system  
2 functions causes a predetermined response to be sent to the data processing system.

1 17. The article of manufacture of claim 14 wherein the set of file system specific functions  
2 which are not common to the file system protocols further comprises a set of extended foreign  
3 file system functions which have no equivalent function in the native file system protocol.

1 18. The article of manufacture of claim 17 wherein the set of extended foreign file system  
2 functions are passed through to the foreign file system in an untranslated form.

1 19. An extensible file access system for accessing a foreign file system from a data processing  
2 system with a native file system, said foreign file system and said native file system  
3 implementing different file system protocols, said file access system comprising:

4 a request issued according to the native file system protocol for data stored in the  
5 foreign file system;

6 a translator for translating the native file system request to an intermediate  
7 programming interface, wherein the intermediate programming interface is different from both  
8 the native file system protocol and the foreign file system protocol;

9 a translator for translating the intermediate file system request to the foreign file system  
10 protocol; and

11 a response returned to the data processing system from the foreign file system  
12 responsive to the translated request.

1 20. The file access system of claim 19 wherein the file access system is extended to support a  
2 second foreign file system by providing a translator for translation from the intermediate  
3 programming interface to the second foreign file system protocol.

1 21. The file access system of claim 19 wherein the file access system is extended to support a  
2 second native file system by providing a translator for translation from the second native file  
3 system protocol to the intermediate programming interface.

1 22. The file access system of claim 19 wherein the intermediate programming interface  
2 comprises a set of generic access functions common to the native file system protocol and the  
3 foreign file system protocol and comprises a set of file system specific functions which are not  
4 common to the file system protocols.

1 23. The file access system of claim 22 wherein set of generic access functions common to the  
2 native file system protocol and the foreign file system protocol are translated from the native  
3 file system protocol to the intermediate programming interface which is then translated to the  
4 foreign file system protocol, and wherein the set of file system specific functions which are not  
5 common to the file system protocols are not translated from the native file system protocol to  
6 the intermediate programming interface which is then translated to the foreign file system  
7 protocol.

1 24. The file access system of claim 23 wherein the set of file system specific functions which  
2 are not common to the file system protocols further comprises a set of extended native file  
3 system functions which have no equivalent function in the foreign file system protocol.

1 25. The file access system of claim 24 wherein the set of extended native file system functions  
2 causes a predetermined response to be sent to the data processing system.

1 26. The file access system of claim 23 wherein the set of file system specific functions which  
2 are not common to the file system protocols further comprises a set of extended foreign file  
3 system functions which have no equivalent function in the native file system protocol.

1 27. The file access system of claim 26 wherein the set of extended foreign file system  
2 functions are passed through to the foreign file system in an untranslated form.